



- (51) International Patent Classification:
A61B 17/04 (2006.01)
- (21) International Application Number:
PCT/US2014/024196
- (22) International Filing Date:
12 March 2014 (12.03.2014)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:

61/780,077	13 March 2013 (13.03.2013)	US
13/800,868	13 March 2013 (13.03.2013)	US
61/786,736	15 March 2013 (15.03.2013)	US
13/832,201	15 March 2013 (15.03.2013)	US

KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

- (71) Applicant: DEPUY SYNTHES PRODUCTS, LLC [US/US]; 325 Paramount Drive, Raynham, Massachusetts 02767 (US).
- (72) Inventors: BURKI, Patrick; Luzernstrasse 19, CH-4500 Solothurn (CH). BOUDUBAN, Nicolas; Luzernstrasse 19, CH-4500 Solothurn (CH). SCHMIDLI, Dieter; Steinlerstrasse 20, CH-4206 Seewen (CH).
- (74) Agents: JOHNSON, Philip, S. et al.; Johnson & Johnson, One Johnson & Johnson Plaza, New Brunswick, New Jersey 08933 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,

Declarations under Rule 4.17:

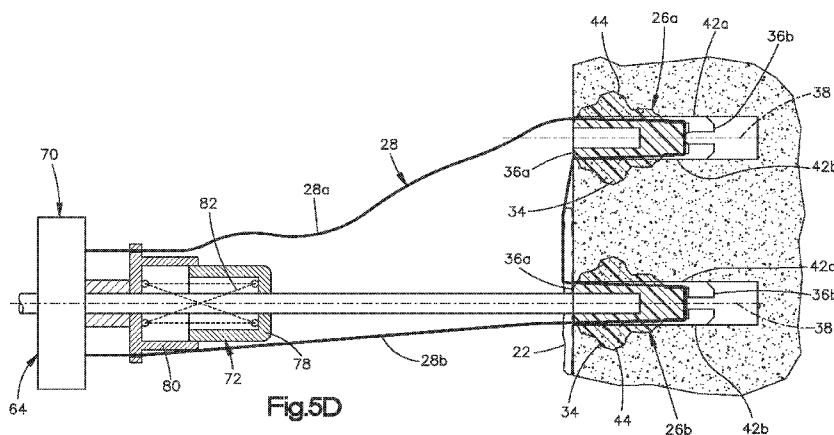
- as to the identity of the inventor (Rule 4.17(i))
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

- (88) Date of publication of the international search report:
11 December 2014

(54) Title: SOFT TISSUE FIXATION SYSTEM



(57) Abstract: A soft tissue fixation assembly includes a plurality of deformable bone anchors and a suture that is configured to fixedly attach to each of the bone anchors. One or more of the bone anchors can be inserted into a bone, and one or more of the bone anchors can be inserted through soft tissue and into the bone. The suture can be inserted through the bone anchors, and energy can be applied to the anchors, thereby causing a deformable material of the bone anchors to deform, thereby capturing the strand of suture in the bone anchor. The strand of suture can be placed in tension, and can extend over the soft tissue so as to retain the soft tissue in contact with the bone.



INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/024196

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61B17/04
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2012/100358 A1 (SPORTWELDING GMBH [CH]; MAYER JOERG [CH]; LEHMANN MARIO [CH]) 2 August 2012 (2012-08-02) page 16, line 10 - page 25, line 6; figures 1-6	1-24
X	US 2004/068267 A1 (HARVIE FRASER [GB] ET AL) 8 April 2004 (2004-04-08) paragraph [0132] paragraph [0148] - paragraph [0178]; figures 35-38B	1-24
X	WO 2012/100359 A1 (SPORTWELDING GMBH [CH]; MAYER JOERG [CH]; MOCK ELMAR [CH]; MUELLER AND) 2 August 2012 (2012-08-02) page 10, line 13 - line 21 page 15, line 1 - page 36, line 8; figures	1-24
	----- -/--	

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search 20 October 2014	Date of mailing of the international search report 29/10/2014
--	--

Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Croatto, Loredana
--	---

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/024196

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2012/078300 A1 (MAYER JOERG [CH] ET AL) 29 March 2012 (2012-03-29) paragraph [0010] paragraph [0029] - paragraph [0064]; figures	1-14, 16-24
X	----- WO 2009/055952 A1 (WOODWELDING AG [CH]; AESCHLIMANN MARCEL [CH]; TORRIANI LAURENT [CH]; L) 7 May 2009 (2009-05-07) page 39, line 7 - page 44, line 13; figures 17, 18	1-14, 16-24
X	----- US 7 491 217 B1 (HENDREN RONALD D [US] ET AL) 17 February 2009 (2009-02-17) column 5, line 1 - column 17, line 54; figures	1-20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/024196

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: 25-41
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2014/024196

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
WO 2012100358	A1	02-08-2012	CA 2821360 A1	02-08-2012
			CN 103338711 A	02-10-2013
			EP 2667789 A1	04-12-2013
			JP 2014510554 A	01-05-2014
			KR 20140006882 A	16-01-2014
			US 2012197316 A1	02-08-2012
			WO 2012100358 A1	02-08-2012
			US 2004068267	A1
EP 1578283 A1	28-09-2005			
EP 2401967 A2	04-01-2012			
EP 2401968 A2	04-01-2012			
JP 4494218 B2	30-06-2010			
JP 2006512144 A	13-04-2006			
JP 2010131428 A	17-06-2010			
US 2004068267 A1	08-04-2004			
US 2006149280 A1	06-07-2006			
WO 2004060173 A1	22-07-2004			
WO 2012100359	A1	02-08-2012	CA 2821362 A1	02-08-2012
			CN 103370013 A	23-10-2013
			EP 2667790 A1	04-12-2013
			JP 2014510555 A	01-05-2014
			KR 20140005968 A	15-01-2014
			US 2012197296 A1	02-08-2012
			WO 2012100359 A1	02-08-2012
			US 2012078300	A1
CN 103209647 A	17-07-2013			
EP 2618746 A1	31-07-2013			
JP 2013537818 A	07-10-2013			
KR 20140011303 A	28-01-2014			
US 2012078300 A1	29-03-2012			
WO 2012037699 A1	29-03-2012			
WO 2009055952	A1	07-05-2009		
			ES 2503727 T3	07-10-2014
			JP 2011500230 A	06-01-2011
			US 2009131947 A1	21-05-2009
			US 2013144299 A1	06-06-2013
			WO 2009055952 A1	07-05-2009
			US 7491217	B1